
MP5103 Mainframe Modules Declassification and Security Instructions

Letter of volatility

If you have data security concerns, this document tells you how to clear or sanitize the memory devices in the following modules. It also explains how to declassify modules that are not functioning.

The procedures in this document are written to meet the requirements specified in:

- NISPOM, DoD 5220.22-M, chapter 8
- ISFO Process Manual for Certification and Accreditation of Classified Systems under NISPOM

Contact information

If you have any questions after you review the information in this documentation, please contact your local Tektronix office, sales partner, or distributor. You can also call the Tektronix corporate headquarters (toll-free inside the U.S. and Canada only) at 1-800-833-9200. For worldwide contact numbers, visit tek.com/contact-tek.

Applicable products

This document contains procedures for the following models:

- MPSU50-2ST
- MSMU60-2
- MSMU200-2

Terminology

The following terms may be used in this document:

- **Clear:** Removes data on media or in memory before reusing it in a secured area. Clears all reusable memory to deny access to previously unsecured information.
- **Demo setups:** Demonstration applications that come loaded on the instrument; you cannot modify them.
- **Direct method of modification:** You can modify data directly.
- **Erase:** Equivalent to clear (see above).
- **Indirect method of modification:** The instrument system resources modify the data; you cannot modify the data directly.
- **Instrument declassification:** Procedures that must be completed before an instrument can be removed from a secure environment. Declassification procedures include memory sanitization and memory removal.



- **Media storage and data export device:** Devices that can be used to store or export data from the instrument, such as a USB port.
- **Nonvolatile memory:** Data is retained when the instrument power is turned off.
- **Protected user data area:** Contains data that is protected by a password.
- **Remove:** Clears instrument data by physically removing the memory device from the instrument.
- **Sanitize:** Eradicates instrument data from media and memory so it cannot be recovered by other means or technology. This is typically used when the device will be moved (temporarily or permanently) from a secured area to a nonsecured area.
- **Scrub:** Directly retrieve and clear the contents of the memory device.
- **User accessible:** You can directly retrieve the contents of the memory device.
- **User data:** Measurement data that represents signals that you connect to the instrument.
- **User modifiable:** You can write to the memory device during normal instrument operation using the front-panel interface or remote control.
- **User settings:** Instrument settings that you can change.
- **Volatile memory:** Temporary memory; data is lost when the instrument is turned off.

Memory devices

The following terms are used in the volatile and nonvolatile memory device tables in this document:

- **User data** – Describes the type of information stored in the device. Refers to waveforms or other measurement data representing signals connected to the instrument by users.
- **User settings** – Describes the type of information stored in the device. Refers to instrument settings that can be changed by the user.
- **Both** – Describes the type of information stored in the device. It means that both user data and user settings are stored in the device.
- **None** – Describes the type of information stored in the device. It means that neither user data nor user settings are stored in the device.
- **Directly** – Describes how data is modified. It means that the user can modify the data.
- **Indirectly** – Describes how data is modified. It means that the instrument system resources modifies the data and that the user cannot modify the data.

Volatile

The following tables list the modules' volatile memory devices and relevant memory-related information. If the table indicates that a device can be cleared or sanitized by the user, see the detailed instructions in [Clear and sanitize procedures](#) (on page 4).

MPSU50-2ST module volatile memory

Type and minimum size	Function	User can change	Data input method	Location	To clear	To sanitize
512 MB DDR3 SDRAM	Runtime data storage	No	None	2_U5, 2_U6	Turn off power for 30 seconds	Turn off power for 30 seconds
640 kB CPU internal RAM	Microprocessor cache	No	None	2_U1	Cycle power	Cycle power
256 kB SRAM	Boot code and data storage	No	None	2_U1	Turn off power for 30 seconds	Turn off power for 30 seconds
380 kB FPGA Block RAM	Hardware temporary storage	No	None	2_U1	Turn off power for 30 seconds	Turn off power for 30 seconds

MSMU60-2 and MSMU200-2 module volatile memory

Type and minimum size	Function	User can change	Data input method	Location	To clear	To sanitize
512 MB DDR3 SDRAM	Runtime data storage	No	None	U5RD, U6RD	Turn off power for 30 seconds	Turn off power for 30 seconds
576 kB CPU internal RAM	Microprocessor cache	No	None	U1RD	Cycle power	Cycle power
256 kB SRAM	Boot code and data storage	No	None	U1RD	Turn off power for 30 seconds	Turn off power for 30 seconds
320 kB FPGA Block RAM	Hardware temporary storage	No	None	U1RD	Turn off power for 30 seconds	Turn off power for 30 seconds
180 kB FPGA Block RAM	Hardware temporary storage	No	None	U100	Turn off power for 30 seconds	Turn off power for 30 seconds

Nonvolatile

The following table lists modules' nonvolatile memory devices and relevant memory-related information. If the table indicates that a device can be cleared or sanitized by the user, see the detailed instructions in [Clear and sanitize procedures](#) (on page 4).

CAUTION: Performing a full-chip erase will render the instrument unbootable and require returning the module for service to load the firmware onboard again. If you need to erase a chip, contact Tektronix.

MPSU50-2ST module nonvolatile memory

Type and minimum size	Function	User can change	Data input method	Location	To clear	To sanitize
32 MB flash memory	Stores module operating firmware, calibration constants, and manufacturing data	Yes	Remote interface control or front panel	2_U2	See Clear and sanitize procedures . You can also perform a full-chip erase as described in the manufacturer's datasheets.	

MSMU60-2 and MSMU200-2 modules nonvolatile memory

Type and minimum size	Function	User can change	Data input method	Location	To clear	To sanitize
32 MB flash memory	Stores module operating firmware, calibration constants, and manufacturing data	Yes	Remote interface control or front panel	U3RD	See Clear and sanitize procedures . You can also perform a full chip erase as described in the manufacturer's datasheets.	

Clearing data

If the memory device you want to clear or sanitize can be modified by users, you can use one of the following procedures.

Test Script Processor (TSP®) scripts can be used to clear data. These scripts can be run from the front panel using a USB flash drive or using a remote interface.

Resetting the instrument

Reset instrument to factory default settings:

```
reset ()
```

CAUTION: Resetting the instrument to factory default settings does not clear any nonvolatile data saved on the module.

Clearing calibration data

To erase user calibration data, send the following commands, where *Z* is the mainframe slot number where the module is installed:

MPSU50-2ST

```
slot[Z].psu[1].cal.unlock()
slot[Z].psu[1].cal.restore(slot[Z].psu[1].CALSET_NOMINAL)
slot[Z].psu[1].cal.save()
slot[Z].psu[1].cal.restore(slot[Z].psu[1].CALSET_NOMINAL)
slot[Z].psu[1].cal.save()
slot[Z].psu[1].cal.lock()
slot[Z].psu[2].cal.unlock()
slot[Z].psu[2].cal.restore(slot[Z].psu[2].CALSET_NOMINAL)
slot[Z].psu[2].cal.save()
slot[Z].psu[2].cal.restore(slot[Z].psu[2].CALSET_NOMINAL)
slot[Z].psu[2].cal.save()
slot[Z].psu[2].cal.lock()
```

MSMU60-2 and MSMU200-2

```
slot[Z].smu[1].cal.unlock()
slot[Z].smu[1].cal.restore(slot[Z].smu[1].CALSET_NOMINAL)
slot[Z].smu[1].cal.save()
slot[Z].smu[1].cal.restore(slot[Z].smu[1].CALSET_NOMINAL)
slot[Z].smu[1].cal.save()
slot[Z].smu[1].cal.lock()
slot[Z].smu[2].cal.unlock()
slot[Z].smu[2].cal.restore(slot[Z].smu[2].CALSET_NOMINAL)
slot[Z].smu[2].cal.save()
slot[Z].smu[2].cal.restore(slot[Z].smu[2].CALSET_NOMINAL)
slot[Z].smu[2].cal.save()
slot[Z].smu[2].cal.lock()
```

Sanitize instrument data

The clearing process described in this document resets pointers to the data and does not sanitize the underlying data. To sanitize the data in the instrument, the integrated circuit flash memories must be removed and destroyed.

To sanitize a nonfunctional instrument, remove the printed circuit boards, then remove and destroy the integrated circuits referenced in the nonvolatile memory table. Return the instrument to Tektronix for installation of replacement boards.